

PLATE VIII.

- Fig. 11. Transverse section of brain behind origin of œsophageal commissures, to show giant ganglion-cells. $\times 290$. R.M., retractors. B.S., blood-sinus. G.C., giant cells. p. 33.
- Figs. 12, 13, 14, 15. Four transverse sections through the brain and base of the tentacular crown, to show the epineural canal and formation of the eye-spots. $\times 53$. B.S., blood-sinus. V.C., nerve-cord. R.M., retractor muscles. S.E., sensory epithelium of the dorsal, and S.V., that of the ventral wall of the epineural canal. T, tentacles. S.P., eye-spots. E, epithelium of anterior cerebral surface. p. 34.
- Fig. 16. Transverse section through brain and bases of the tentacles, showing the origin of the circumœsophageal commissures ($\times 53$ and reduced). p. 34.
- A. Circumœsophageal nerves.
 B. Nerves to the epineural canal and dorsal pair of tentacles.
 C. Two nerve-strands, in cross section, which seem to be connected with the sense-organs.
 D. Fused retractor muscles.
 E. Blood-sinus.
- Fig. 17. Diagram of a nephridium. A, excretory canal. B, cœlomic pore. C, vesicle. D, tubular part. E, body-wall. p. 36.
- Fig. 18. To show histology of tubular portion. $\times 290$. A, peritoneal cells. B, muscular wall. C, secreting cells which at D are seen forming feathery columns. E, vesicles. p. 36.

5. On *Potamon (Potamonautes) latidactylum*, a new Fresh-water Crab from Upper Guinea. By Dr. J. G. DE MAN, of Ierseke, Holland.¹

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(Plate IX.²)

In the year 1881, *Potamon africanum* A. M.-E. was known only by the short diagnosis and the figures in the 'Nouvelles Archives du Muséum,'³ made from a quite young individual from the Gaboon. The anterior legs had neither been described nor figured, and it is therefore not surprising that some older specimens of a *Potamon* from Liberia were referred by me erroneously to this species⁴.

Some time since, three adult specimens of a *Potamon* were sent me for examination by Prof. Jeffrey Bell; they had been collected in the River Prah, in the south of Ashanti, West Africa. These Crabs not only proved to belong to the same species as that described by me in 1881, when compared with a female of medium size and a very young male from Liberia in the Leyden Museum, but they proved also to be new, as a typical specimen of *P. africanum*, a middle-sized female from "Ogoué" (evidently the River Ogowé, just below the Equator), was kindly sent me by Prof. Bouvier, and as a more complete description of *P. africanum* was published in 1887, in which, however, the legs have not been

¹ Communicated by F. JEFFREY BELL, F.Z.S.

² For explanation of the Plate, see p. 47.

³ Vol. v. p. 186, pl. xi. fig. 2 (1869).

⁴ *Telphusa africana* de Man, Notes Leyd. Mus. iii. p. 121 (1881).

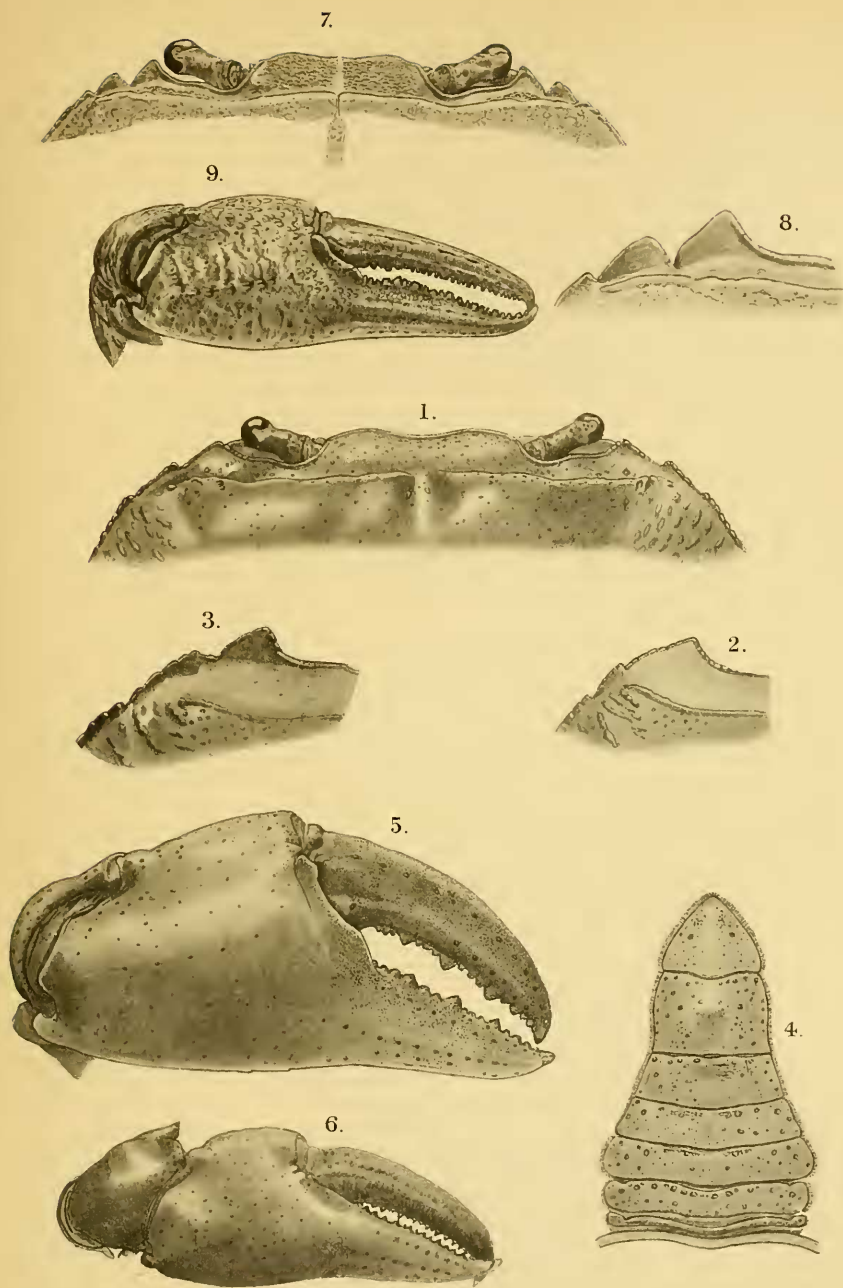
figured (A. Milne-Edwards, 'Observations sur les Crabes des eaux douces de l'Afrique,' Paris, 1887, p. 4, pl. 2. fig. 8). I therefore propose the name of *Potamon latidactylum* for this new species that inhabits Liberia and Ashanti, *on account of the characteristic shape of the hands*, and as this feature was not alluded to in my somewhat incomplete description of 1881, another will, I think, be welcome.

The rivers of West Africa and of the Soudan are inhabited by several species of *Potamon* which differ from the other species of this subgenus in the existence of *two* epibranchial teeth behind the external orbital angle, instead of one as is usual. I was at first inclined to create for these species a new subgenus, but the differences from *Parathelphusa* are, indeed, of too little importance. These species are the following:—

- Potamon aubryi* H. M.-E. Gaboon.
- „ *pelii* Herklots. Gold Coast.
- „ *africanum* A. M.-E. Gaboon ; French Congo.
- „ *decazei* A. M.-E. French Congo.
- „ *emarginatum* Kingsley. West Africa.
- „ *floweri* de M. Soudan.
- „ *latidactylum*, n. sp. Upper Guinea.

It must, however, be observed that *P. emarginatum* is considered by Miss Rathbun (Proc. U. S. National Museum, xxii. 1900, p. 283) to be the same as *P. aubryi*. *P. latidactylum* may at first sight be distinguished from *P. africanum* by the *different shape of the extraorbital and epibranchial teeth and by the different form of the hands, especially of the fingers*, but there are still other differences.

The cephalothorax is *a little more enlarged* than in the species from the "Ogoué," as is readily shown by the measurements. The upper surface is *somewhat less depressed*, the branchial regions are *somewhat swollen*, especially the anterior ones, and the gastric and cardiac areas are, in aged individuals, also *slightly convex* and not so much depressed as in *P. africanum*. The oblique furrows or depressions limiting off the protogastric areas from the anterior branchial lobes are scarcely distinguishable in *P. africanum*; in the other species, however, they are quite distinct, and, in adult individuals, *rather deep*. The urogastric lobes and the cardiac area are *a little broader* in proportion to the breadth of the carapace than in *P. africanum*. In the latter the gastric region is faintly granular or rugose just behind the postfrontal ridge, but in the new species it appears everywhere smooth, though finely and sparsely punctate. The anterior branchial area is slightly rugose in *P. africanum*, but not marked with oblique wrinkles; these are quite distinct in the species from the River Prah and Liberia; on the posterior branchial lobe these rugosities occur in both species, they are, however, thinner and finer in *P. latidactylum*. The posterior part of the upper surface



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POTAMON (POTAMONAUTES) LATIDACTYLUM.

appears, on either side of the cardiac and intestinal regions, somewhat granular and rugose in the Congo species, but *quite smooth*, though finely punctate, in *P. latidactylum*.

In the large aged female from the River Prah the oblique rugæ near the lateral boundaries of the carapace show a tendency to disappear.

In both species the postfrontal ridge is *rather prominent, smooth*, and nowhere granulated. In the type specimen of *P. africanum* it extends in a nearly straight line towards the second epibranchial tooth, uniting with that of the right side, but ending about 1 mm. short of that on the left. The postfrontal ridge of *P. latidactylum* usually curves slightly forwards mesially and at each end; it *never unites* with the epibranchial teeth, ending about $1\frac{1}{2}$ or 2 mm. short of the middle of the first epibranchial tooth. It is situated a little more distant from the orbits than in *P. africanum*, so that the furrow behind the orbits is somewhat narrower in the latter species. The front has the same form and breadth in both, and shows in the middle a *broad, though shallow bay*; both the front and the furrow behind the orbits are a little granular in *P. africanum*, but *quite smooth*, though finely and sparsely punctate, in *P. latidactylum*.

The extraorbital and the two epibranchial teeth have a *quite different form* (Pl. IX. figs. 1-3 & 7, 8). In *P. africanum* (Pl. IX. figs. 7, 8) they are *more prominent* and separated from one another *by much deeper incisions*. The first epibranchial tooth is, in this species, a little smaller than the extraorbital, but has about the same form; its straight or slightly arcuate outer margin makes a right angle with the anterior margin of this tooth. In *P. latidactylum*, however, the extraorbital tooth and the anterior epibranchial one are *much less prominent* and *much lower*, the anterior margin of the first epibranchial tooth being *considerably shorter* than its outer margin, measuring only one-fifth of it. In the aged female from the River Prah the extraorbital tooth appears somewhat longer than the epibranchial one, and in the two males (Pl. IX. fig. 1) they have about the same length; in the much younger female from Liberia (Pl. IX. fig. 3) the epibranchial tooth, however, is almost twice as long as the extraorbital, but in the quite young male from the same locality (Pl. IX. fig. 2) the extraorbital tooth appears again once and a half as long as the epibranchial. As regards the relative length of these teeth, *P. latidactylum* presents therefore considerable individual differences. In both species the second epibranchial tooth passes backward into an arcuate crest, bounding the cephalothorax laterally; this crest, which in young individuals of *P. latidactylum* (Pl. IX. fig. 3) appears distinctly denticulate, the denticulations or crenulations disappearing in more aged individuals, reaches in *P. africanum* to the posterior boundary of the urogastric lobes and does not curve inward on to the surface of the branchial region: in *P. latidactylum*, however, it is *much shorter*,

scarcely reaching to the level of the mesial crescentic portion of the cervical suture, and *it distinctly curves inwards on to the upper surface of the carapace*. The orbits have the same form in both species, but in *P. africanum* the incision that separates the extraorbital tooth from their lower margin is *deep*, much deeper than in the new species, so that in the former the outer angle of the orbits strongly projects beyond this margin.

In *P. africanum* the transverse furrow, limiting off the subhepatic region from the branchial floor, is bordered by a row of small granules, the subhepatic area is covered with prominent rugosities and granules; in our new species the latter appears almost smooth, and the row of granules is also less distinct. The rugosities on the inflected portion of the cephalothorax and on the outer part of the pterygostomian regions are also much less distinct in the species from Upper Guinea than in *P. africanum*.

The outer foot-jaws have the same form and characters in both species, and the furrow on the ischium-joint runs in both a *little* closer to the internal than to the outer margin of this joint.

The type of *P. africanum* is a female, the abdomen of which has not yet obtained its full development and size. The sternum of *P. latidactylum* is smooth, punctate, and in both species a transverse furrow unites the postero-external angles of the buccal frame. The male abdomen (Pl. IX. fig. 4) somewhat resembles that of *P. consobrinum* de M. (Notes Leyden Museum, 1899, pl. 10. fig. 10, i). The lateral margins are slightly concave. The terminal joint has about the same length as the penultimate; it is triangular, rather pointed at the tip, not rounded like that of *P. consobrinum*; the lateral margins are very slightly arcuate posteriorly, nearly straight towards the tip. The posterior margin of the penultimate joint is a little broader than the anterior; the lateral margins, slightly convex anteriorly, are a little concave posteriorly. The length of the antepenultimate joint measures about two-thirds that of the penultimate, its posterior margin is a little concave, so that the lateral margins are somewhat shorter than the length of this joint in the middle line. The lateral margins of this and of the following fourth joint are straight, but those of the fifth are rounded; in *P. consobrinum*, however, this latter is also straight. As regards the coarse punctation, *P. latidactylum* agrees with *P. consobrinum*.

In the two males from the River Prah the right chelipede is a little larger than the left; in the very young one from Liberia the left is a little larger. The upper margin of the arm of the larger male from the River Prah bears some transverse rugosities, and one observes a small tubercle on the concave upper surface at the proximal end, somewhat nearer to the upper than to the anterior margin; the latter is also somewhat tubercular on its proximal half. The anterior surface of the arm bears, near the articulation of the wrist, a conical tubercle not far from the anterior margin, and a lower, broader tubercle between it and

the under margin; the latter is also slightly tubercular along its distal half. The three faces of the arm are quite smooth. The carpus is also nearly smooth above, though sparsely and rather finely punctate; the inner margin is armed with a rather small pointed spine in the middle and beneath it with a small acute tubercle. The larger chela (Pl. IX. fig. 5), measured horizontally, is a little longer than the length of the cephalothorax and the fingers are a little longer than the palm; the latter is just *as long as high* near the articulation of the fingers. The convex outer surface of the palm is quite smooth, though finely punctate, similar to the upper margin, but the lower edge of the palm is *obsoletely tubercular*. The fingers are *somewhat compressed, especially the immobile one*. The *immobile finger is rather high at the base*; its *flattened* outer surface appears *minutely and densely granular* under an ordinary lens, and one observes on it three longitudinal rows of impressed points running to the tip of the finger, the middle one of which is situated a little closer to the lower margin of the finger than to the upper, and looks like a very shallow furrow. The 15 or 16 teeth are small, two or three are somewhat larger than the others, and one in the middle of the finger is the largest of all. The fingers leave a narrow interspace between them when closed, the pointed tips being only in contact and crossing one another. The dactylus is somewhat arcuate and tapers rather slowly to the tip; both on the outer and inner surfaces and on its upper edge this finger appears *minutely granular* under a lens, and one observes on it several rows of small shallow puncta. The teeth agree in size and in number with those of the index, three or four being somewhat larger than the others. The little convex inner surface of the palm is quite smooth.

The left chelipede is somewhat smaller, the hand being 41 mm. long; it fully agrees with the right one, but the fingers are in contact and the rows of puncta are a little more distinct.

In the young male from Liberia the fingers are in contact in both chela, the upper margin of the palm appears distinctly granulate under a lens, and the longitudinal furrows on the fingers are already visible to the naked eye.

In the young female from Liberia the right chelipede is a little larger than the left, the fingers are in contact, and the furrows on the index, as also the rows of puncta on the mobile finger, are distinctly visible to the naked eye. The upper margin of the palm of the left hand appears finely granular.

In the aged female from the River Prah the left chelipede is *much larger than the right*; the hand, indeed, is 45 mm. long, just as long as the cephalothorax, and $20\frac{1}{2}$ mm. high, but the right chela (Pl. IX. fig. 6) is only 31 mm. long and 13 mm. high. In both the fingers are in contact throughout their whole length and the pointed tips cross one another; *the strongly compressed and much flattened immobile finger is not furrowed*, though the

rows of puncta are still visible. The fingers are but little longer than the palm, and the latter is on its outer surface and on its upper margin smooth, sparsely punctate. The fingers of the smaller chela, however, are *once and a half* as long as the palm (Pl. IX. fig. 6).

The female type-specimen of *P. africanum* compared with the female from Liberia, which is about the same size, shows the following differences:—The anterior legs (Pl. IX. fig. 9) are *equal*, as regards their shape and size. The transverse rugosities on the upper margin of the arm are more distinctly granular, and the anterior and lower margins are also more distinctly tuberculated; the conical spine on the anterior surface, near the articulation of the wrist, is more pointed, and several small tubercles are seen between it and the anterior margin of the arm, that are wanting in *P. latidactylum*. The upper surface of the carpus is slightly granular at the base of the spine on the inner margin, and one observes, moreover, everywhere fine impressed lines and points; the spine is somewhat larger than in *P. latidactylum*, and instead of a small tubercle, there is beneath it a smaller, pointed spine. The hands (Pl. IX. fig. 9) have a *quite different form*. The fingers, almost in contact, are *distinctly somewhat longer than the palm*, and *the latter is distinctly less high than long*. The upper margin of the palm is covered with depressed granules, and the puncta on the convex outer surface are partly arranged in longitudinal rows. The fingers are *not compressed, slender, nor curved*, except at the pointed tips which cross one another. The immobile finger is *much lower* at its base than in the other species, and its *convex* outer surface is *distinctly furrowed*; of the three furrows visible to the naked eye, the middle one is deeper than the others. This finger is armed with 25 or 26 small teeth, some of them on the proximal half are somewhat larger than the others. Finally, the dactylus tapers regularly to the tip and is also longitudinally furrowed by rows of impressed points; the teeth agree with those of the index. The fingers are almost smooth.

The ambulatory legs, the measurements of which are given on p. 47, apparently agree with those of *P. latidactylum*, but the meropodites are *more granular along and near their upper edges*.

Potamon aubryi H. M.-E., from the Gaboon, *P. pelii* Herklots, from the Gold Coast, and *P. floweri* de M., from the Soudan, are different species (*vide* de Man, Proc. Zool. Soc. Lond. 1901, vol. i. p. 94), being at first sight distinguished by the upper surface of their cephalothorax being *very convex* from behind forwards, *smooth and shining, by the different form of the fingers, of the abdomen, &c.* The young male of *Potamon pelii* described l. c. p. 99, I have re-examined for the purposes of this memoir.

